

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An ink jet recording medium comprising a support having thereon a porous layer having a capacity of 15 to 40 ml/m<sup>2</sup> and containing micro particles of ground silica and a cross-linked hydrophilic binder which is cross-linked with ionizing radiation,

wherein the micro particles of ground silica have an average particle diameter of secondary particles of 10 - 300 nm and a weight ratio of the micro particles of ground silica to the hydrophilic binder in the porous layer is from 2.5:1 to 20:1.

2. (Original) The ink jet recording medium of claim 1, wherein the micro particles of ground silica have an average particle diameter of primary particles of 3 - 50 nm.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

3. (Original) The inkjet recording medium of claim 1, wherein said micro particles of ground silica is synthesized with a gel method.

4. (Original) The inkjet recording medium of claim 2, wherein said micro particles of ground silica is synthesized with a gel method.

5. (Currently Amended) An ink jet recording medium comprising a support having thereon a porous layer having a capacity of 15 to 40 ml/m<sup>2</sup> and containing micro particles of silica and a cross-linked hydrophilic binder which is cross-linked with ionizing radiation,

wherein a specific surface area measured with BET method of the micro particles of silica is 40 - 100 m<sup>2</sup>/g, and

a coefficient of variation in a primary particle distribution of the micro particles of silica is not more than 0.4 and a weight ratio of the micro particles of ground silica to the hydrophilic binder in the porous layer is from 2.5:1 to 20.1.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

6. (Currently Amended) An ink jet recording medium comprising a support having thereon a porous layer having a capacity of 15 to 40 ml/m<sup>2</sup> and containing micro particles of silica and a cross-linked hydrophilic binder being cross-linked with ionizing radiation,

wherein the micro particles of silica are gas phase method silica, and a ratio of isolated silanol groups of the micro particles of silica is 0.5 - 2.0 and a weight ratio of the micro particles of ground silica to the hydrophilic binder in the porous layer is from 2.5:1 to 20:1.

7. (Original) The ink jet recording medium of claim 6, wherein an average particle diameter of primary particles of said gas phase method silica is 5 - 50 nm, and a ratio of isolated silanol groups of the micro particles of silica is 0.5 - 1.5.

8. (Original) The ink jet recording medium of claim 1, wherein the hydrophilic binder comprises a polymer which is cross-linked by exposing ionizing radiation to a hydrophilic polymer of a degree of polymerization of at least 500, and a main-chain of the hydrophilic polymer having a plurality of side-chains.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

9. (Original) The ink jet recording medium of claim 5, wherein the hydrophilic binder comprises a polymer which is cross-linked by exposing ionizing radiation to a hydrophilic polymer of a degree of polymerization of at least 500, and a main-chain of the hydrophilic polymer having a plurality of side-chains.

10. (Original) The ink jet recording medium of claim 6, wherein the hydrophilic binder comprises a polymer which is cross-linked by exposing ionizing radiation to a hydrophilic polymer of a degree of polymerization of at least 500, and a main-chain of the hydrophilic polymer having a plurality of side-chains.

11. (Original) The ink jet recording medium of claim 8, wherein the hydrophilic polymer is an modified polyvinyl alcohol which is capable of cross-linking by ultraviolet ray, and a modification ratio of the side-chain to the main-chain is 0.01 - 4 mol%.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

12. (Original) The ink jet recording medium of claim 9, wherein the hydrophilic polymer is an modified polyvinyl alcohol which is capable of cross-linking by ultraviolet ray, and a modification ratio of the side-chain to the main-chain is 0.01 - 4 mol%.

13. (Original) The ink jet recording medium of claim 10, wherein the hydrophilic polymer is an modified polyvinyl alcohol which is capable of cross-linking by ultraviolet ray, and a modification ratio of the side-chain to the main-chain is 0.01 - 4 mol%.

14. (Original) The ink jet recording medium of claim 1, wherein the support is a non water-absorptive support.

15. (Original) The ink jet recording medium of claim 5, wherein the support is a non water-absorptive support.

16. (Original) The ink jet recording medium of claim 6, wherein the support is a non water-absorptive support.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

17. (Original) A method for preparing the ink jet recording medium of claim 1, comprising the steps of:

coating on the support an coating composition so as to form a porous layer containing inorganic micro particles and a hydrophilic binder which is capable of cross-linking by ultraviolet ray;

exposing ultraviolet ray to the porous layer by employing a metal halide lamp which has primary emission wavelength of 300 - 400 nm; and

drying the porous layer,  
wherein the ultraviolet ray has an irradiation energy at a wavelength of 350 nm of 1 - 100 mJ/cm<sup>2</sup>.

18. (Original) A method for preparing the ink jet recording medium of claim 5, comprising the steps of:

coating on the support an coating composition so as to form a porous layer containing inorganic micro particles and a hydrophilic binder which is capable of cross-linking by ultraviolet ray;

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

exposing ultraviolet ray to the porous layer by employing a metal halide lamp which has primary emission wavelength of 300 - 400 nm; and

drying the porous layer,

wherein the ultraviolet ray has an irradiation energy at a wavelength of 350 nm of 1 - 100 mJ/cm<sup>2</sup>.

19. (Original) A method for preparing the ink jet recording medium of claim 6, comprising the steps of:

coating on the support an coating composition so as to form a porous layer containing inorganic micro particles and a hydrophilic binder which is capable of cross-linking by ultraviolet ray;

exposing ultraviolet ray to the porous layer by employing a metal halide lamp which has primary emission wavelength of 300 - 400 nm; and

drying the porous layer,

wherein the ultraviolet ray has an irradiation energy at a wavelength of 350 nm of 1 - 100 mJ/cm<sup>2</sup>.

Appl. No. 10/770,619  
Reply to Office Action of March 6, 2006

**Claim 20 (Canceled).**

**21. (Previously Presented)** The ink jet recording medium of claim 1, wherein a weight ratio of the micro particles of ground silica to the hydrophilic binder in the porous layer is from 5:1 to 15:1.